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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,935	12/05/2001	David Prager	68144/P007US/10501224	9271

29053 7590 07/31/2009
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EXAMINER	
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ART UNIT	**PAPER NUMBER**
2416	

MAIL DATE	DELIVERY MODE
07/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/010,935	PRAGER ET AL.	
	Examiner	Art Unit	
	JASON E. MATTIS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,7-34,36-47 and 62-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 7-21, 28-34, 36-42, 47, 62-68, and 70-74* is/are rejected.

7)☒ Claim(s) *22-27,43-46,69 and 75* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the Amendment After Final filed 7/10/09. Claims 5, 6, 35, and 48-61 have been canceled. Claims 1-4, 7-34, 36-37, and 62-75 are currently pending in the application.

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 10, 11-13, 28-32, 64, and 70 rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. (U.S. Pat. 5802177) in view of Kakuma et al. (U.S. Pat. 5504742).

With respect to claim 1, Daniel et al. discloses a wireless communication system **(See the abstract of Daniel et al. for reference to a radio telecommunication system)**. Daniel et al. also discloses a first subscriber subsystem disposed at a subscriber location having a first data interface compatible with a first

general purpose protocol and a first digital interface compatible with a protocol other than the first general purpose protocol **(See the abstract, column 3 line 48 to column 4 line 3, and Figure 1 of Daniel et al. for reference to ITS 13, which is a first subscriber subsystem located within a subscriber's premises, having a subscriber interface 16, which is compatible with a first general purpose protocol, and a serial interface 18, which is a first digital interface compatible with a different protocol)**. Daniel et al. also discloses that the first subscriber subsystem provides only digital processing of the subscriber data **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13 providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18)**. Daniel et al. further discloses a second subscriber subsystem disposed at a subscriber location having a second subscriber data interface compatible with a wireless protocol and a second digital interface coupled to the first digital interface to provide communication between the first subscriber data interface and the second subscriber data interface **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is a second subscriber subsystem located on the outside of a subscriber's premises, having a radio transceiver 23, which is a second subscriber data interface compatible with a wireless CDMA communication protocol, and serial interface 21, which is a second digital interface coupled to serial interface 18 to provide communication between the ITS 13 and STRU 14)**. Daniel et al. also discloses that the first subsystem comprises an indoor unit subsystem and the second subsystem comprises an outdoor

unit subsystem **(See the abstract and column 3 lines 48-52 of Daniel et al. for reference to the ITS 13 being an indoor unit and the STRU 14 being an outdoor unit)**. Daniel et al. does not specifically disclose that the first subscriber data interface provides a broadband interface compatible with a broadband protocol.

With respect to claim 32, Daniel et al. does not specifically disclose providing broadband interfaces.

With respect to claim 64, Daniel et al. discloses a wireless communication system **(See the abstract of Daniel et al. for reference to a radio telecommunication system)**. Daniel et al. also discloses an indoor subsystem comprising an interface compatible with a protocol and a first digital interface compatible with a digital protocol **(See the abstract, column 3 line 48 to column 4 line 3, and Figure 1 of Daniel et al. for reference to ITS 13, which is an indoor subsystem, having a subscriber interface 16, which is an interface compatible with a protocol, and a serial interface 18, which is a first digital interface compatible with a digital protocol)**. Daniel et al. further discloses performing only processing of digital signals by the indoor subsystem **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13 providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18 or through subscriber interface 16)**. Daniel et al. also discloses a first outdoor subsystem comprising a wireless interface and a second digital interface compatible with a digital protocol **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is an outdoor subsystem, having a radio**

transceiver 23, which is a wireless interface, and serial interface 21, which is a second digital interface compatible with a digital protocol). Daniel et al. further discloses all processing of analog signals being performed by the first outdoor subsystem **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14 providing all analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23)**. Daniel et al. also discloses the second digital interface communicating with the first digital interface via a digital link to provide digital communication of subscriber data between the indoor system and the first outdoor system **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the ITS 13 and STRU 14 being coupled via serial link 15, which is a digital link, between serial interfaces 18 and 21 providing digital communication of subscriber data between ITS 13 and STRU 14)**. Daniel et al. does not specifically disclose the indoor subsystem comprising a broadband interface compatible with a broadband protocol.

With respect to claim 70, Daniel et al. discloses a communication method **(See the abstract of Daniel et al. for reference to a radio telecommunication system operating a communication method)**. Daniel et al. also discloses providing an indoor subsystem comprising an interface compatible with a protocol and a first digital interface compatible with a digital protocol **(See the abstract, column 3 line 48 to column 4 line 3, and Figure 1 of Daniel et al. for reference to ITS 13, which is an indoor subsystem, having a subscriber interface 16, which is an interface compatible**

with a protocol, and a serial interface 18, which is a first digital interface compatible with a digital protocol). Daniel et al. further discloses performing only processing of digital signals by the indoor subsystem **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13 providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18 or through subscriber interface 16)**. Daniel et al. also discloses providing a first outdoor subsystem comprising a wireless interface and a second digital interface compatible with a digital protocol **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is an outdoor subsystem, having a radio transceiver 23, which is a wireless interface, and serial interface 21, which is a second digital interface compatible with a digital protocol)**. Daniel et al. further discloses all processing of analog signals being performed by the first outdoor subsystem **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14 providing all analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23)**. Daniel et al. also discloses the second digital interface communicating with the first digital interface via a digital link to provide digital communication of subscriber data between the indoor system and the first outdoor system **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the ITS 13 and STRU 14 being coupled via serial link 15, which is a digital link, between serial interfaces 18 and 21 providing digital communication of subscriber data between ITS 13 and STRU 14)**. Daniel et

al. does not specifically disclose the indoor subsystem comprising a broadband interface compatible with a broadband protocol.

With respect to claims 1, 32, 64, and 70, Kakuma et al., in the field of communications, discloses providing a subscriber interface providing a broadband interface compatible with a broadband protocol **(See column 1 lines 46-63, column 4 line 65 to column 5 line 14, and Figure 2 of Kakuma et al. for reference to providing a broadband ISDN interface compatible with broadband ISDN, which is a broadband protocol)**. Using a subscriber interface providing a broadband interface compatible with a broadband protocol has the advantage of providing more bandwidth capacity than a non-broadband interface using a non-broadband protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Kakuma et al., to replace the ISDN subscriber interface of Daniel et al. with a broadband ISDN interface, as disclosed by Kakuma et al., with the motivation being to provide more bandwidth capacity to the system.

With respect to claim 2, Daniel et al. discloses using ISDN **(See column 3 lines 53-62 and Figure 1 of Daniel et al. for reference to the subscriber interface 16 including an interface for ISDN)**.

With respect to claim 10, Daniel et al. discloses that the second subscriber subsystem provides all analog processing of the subscriber data provided by the system **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14 providing all analog radio signal processing by receiving digital data through**

serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23).

With respect to claim 11, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose the second subsystem comprising a frequency converter for conversion between an intermediate frequency and a radio frequency, up-converting from a base-band frequency, as data is received on serial interface 21 through link 15 (See the abstract of Daniel et al.), to an intermediate frequency, and then from an intermediate frequency to a radio frequency is old and well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Using a frequency converter for conversion between an intermediate frequency and a radio frequency has the advantage of providing a more interference tolerant means to convert between a base band signal and a radio frequency signal.

With respect to claim 12, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose the second subsystem comprising at least one amplifier, using a power amplifier in a radio transceiver is old an well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Using an amplifier has the advantage of increasing the signal strength of a radio signal such that it may be received at a greater distance with increased accuracy.

With respect to claim 13, although Daniel et al. does disclose CTRU 3, which is similar to STRU 14, having a digital multiplexer (**See column 3 lines 36-52 and Figure**

1 of Daniel et al. for reference to CTRU 3 having a multiple access CDMA modem, which is a type of digital multiplexer), the combination of Daniel et al. and Kakuma et al. does not specifically discloses the second subsystem comprising a digital multiplexer. It would have been obvious for one of ordinary skill in the art at the time of the invention to use a digital multiplexer such that multiple input data streams can be transmitted simultaneously using a CDMA modem.

With respect to claims 28-31, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose using multi-port data routing and multi-port data switching, these functionalities are old and well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Using multi-port data routing and multi-port data switching has the advantage of allowing multiple data links to be connected from one device to many other devices using the same network interface.

With respect to claim 32, although the combination of Daniel et al. and Kakuma et al. does not specifically disclose providing broadband interfaces, providing broadband interfaces for a wireless network as well as a wired backhaul network is old an well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Providing broadband interfaces for a wireless network as well as a wired backhaul network has the advantage of providing high-speed data services to users of the system.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Eyuboglu et al. (U.S. Publication US 2002/0196749 A1).

With respect to claim 3, the combination of Daniel et al. and Kakuma et al. does not disclose using Ethernet protocol.

With respect to claim 3, Eyuboglu et al., in the field of communications, discloses using Ethernet protocol **(See page 1 paragraph 5 of Eyuboglu et al. for reference to using Ethernet protocol in a backhaul connection to another network)**. Using Ethernet protocol has the advantage of allowing the users of the wireless network to communicate with users of an Ethernet network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Eyuboglu et al., to combine using Ethernet, as suggested by Eyuboglu et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow the users of the wireless network to communicate with users of an Ethernet network.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Marin et al. (U.S. Publication US 2002/0174441 A1).

With respect to claim 4, the combination of Daniel et al. and Kakuma et al. does not disclose using SONET protocol, which is a synchronous signal protocol.

With respect to claim 4, Marin et al. discloses using SONET protocol **(See page 2 paragraph 25 and Figure 2 of Marin et al. for reference to using SONET protocol in a backhaul connection)**. Using SONET protocol has the advantage of allowing the users of the wireless network to communicate with users of a SONET network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Marin et al., to combine using SONET protocol, as suggested by Marin et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow the users of the wireless network to communicate with users of a SONET network.

7. Claims 7, 8, 62, 63, 67, and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Dapper et al. (U.S. Pat. 6275990 B1).

With respect to claims 7, 8, 62, 63, 67, and 73, the combination of Daniel et al. and Kakuma et al. does not disclose using an OFDM digital modem and a digital multiplexer to process signals.

With respect to claims 7, 8, 62, 63, 67, and 73, Dapper et al., in the field of communications, discloses using an OFDM digital modem and a digital multiplexer to process signals **(See column 78 line 51 to column 80 line 10 and Figure 37 of Dapper et al. for reference to using a digital OFDM modem and a digital multiplexer to process signals)**. Using an OFDM digital modem and a digital

multiplexer to process signals has the advantage of allowing a system to process and route OFDM signals on multiple channels such that bandwidth is used more efficiently.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Dapper et al., to combine using an OFDM digital modem and a digital multiplexer to process signals, as suggested by Dapper et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to allow a system to process and route OFDM signals on multiple channels such that bandwidth is used more efficiently.

8. Claims 9, 14, 65, 68, 71, and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Zendle (U.S. Pat. 6865170 B1).

With respect to claims 9 and 14, the combination of Daniel et al. and Kakuma et al. does not specifically disclose the first and second digital interfaces being fiber optic interfaces.

With respect to claims 65 and 71, the combination of Daniel et al. and Kakuma et al. does not specifically disclose the digital links between subsystems comprising fiber optic links.

With respect to claims 9, 14, 65, and 71, Zendle, in the field of communications, discloses using fiber optic interfaces and fiber optic links to couple subscriber subsystems **(See column 10 lines 10-41 and Figure 8 of Zendle for reference to using fiber optic cables and fiber optic interfaces to couple an indoor**

subscriber subsystem unit to an outdoor subscriber subsystem unit). Using fiber optic interfaces and fiber optic links to couple subscriber subsystems has the advantage of reducing signal loss between subscriber subsystems such that they may be more flexible positioned **(See column 10 lines 28-41 of Zendle for reference to this advantage)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Zendle, to combine using fiber optic interfaces and fiber optic links to couple subscriber subsystems, as suggested by Zendle, with the system and method of Daniel et al. and Kakuma et al., with the motivation being to reduce signal loss between subscriber subsystems such that they may be more flexible positioned.

With respect to claims 68 and 74, Daniel et al. discloses the first and second digital interfaces providing arbitration between cabling and internal circuitry of the indoor and outdoor subsystems respectively **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the serial interfaces 18 and 21 providing arbitration between the serial link 15 and internal circuitry of ITS 13 and STRU 14)**.

9. Claims 15-20, 33, 36-38, 42, 66, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Cam et al. (U.S. Publication US 2002/0126704 A1).

With respect to claims 15 and 16, the combination of Daniel et al. and Kakuma et al. does not specifically disclose that the communication of subscriber data via the

first and second digital interfaces is synchronous with synchronous overhead added to subscriber data.

With respect to claims 17-20, 66, and 72, the combination of Daniel et al. and Kakuma et al. does not disclose using SONET, which is a synchronous communication protocol, with training and timing overhead bits added.

With respect to claims 15-20, 47, 66, and 72, Cam et al., in the field of communications, discloses using SONET, which is a synchronous communication protocol, with training and timing overhead bits added **(See page 1 paragraph 10 and page 2 paragraph 16 of Cam et al. for reference to using SONET protocol with training and timing overhead bit patterns)**. Using SONET protocol with training and timing overhead bit patterns has the advantage of using a well-known protocol to communicate quickly and efficiently communicate information in a fiber optic link.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Cam et al., to combine using SONET protocol with training and timing overhead bit patterns, as suggested by Cam et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to use a well-known protocol to communicate quickly and efficiently communicate information in a fiber optic link.

With respect to claim 33, Daniel et al. discloses a method for providing wireless subscriber digital signal processing **(See the abstract of Daniel et al. for reference to a radio telecommunication method providing subscriber signal processing)**. Daniel et al. also discloses providing a first signal processing subsystem at a subscriber

location providing only digital signal processing with respect to the subscriber data signal **(See column 3 line 48 to column 4 line 3 and Figure 1 of Daniel et al. for reference to ITS 13, which is a first signal processing subsystem, providing only digital call processing and speech transcoding/encryption on data before it is sent digitally through serial interface 18)**. Daniel et al. further discloses providing a second signal processing subscriber subsystem at a subscriber location providing analog and digital signal processing with respect to the subscriber data signal **(See column 4 lines 9-16 and Figure 1 of Daniel et al. for reference to STRU 14, which is a second signal processing subsystem, providing digital processing as well as analog radio signal processing by receiving digital data through serial interface 21, and converting the digital data into an radio frequency signal using CDMA modem 22 and radio transceiver 23)**. Daniel et al. also discloses coupling the first and second subsystems using a digital link **(See column 4 lines 1-16 and Figure 1 of Daniel et al. for reference to the ITS 13 and STRU 14 being coupled via serial link 15, which is a digital link, between serial interfaces 18 and 21).** Daniel et al. further discloses that the first subsystem comprises an indoor unit subsystem and the second subsystem comprises an outdoor unit subsystem **(See the abstract and column 3 lines 48-52 of Daniel et al. for reference to the ITS 13 being an indoor unit and the STRU 14 being an outdoor unit)**. Daniel et al. does not specifically disclose the first subsystem having a first broadband interface. Daniel et al. also does not specifically disclose that the communication of subscriber data via the first and second digital interfaces is synchronous.

With respect to claim 33, Kakuma et al., in the field of communications, discloses providing a subscriber interface providing a broadband interface compatible with a broadband protocol **(See column 1 lines 46-63, column 4 line 65 to column 5 line 14, and Figure 2 of Kakuma et al. for reference to providing a broadband ISDN interface compatible with broadband ISDN, which is a broadband protocol)**. Using a subscriber interface providing a broadband interface compatible with a broadband protocol has the advantage of providing more bandwidth capacity than a non-broadband interface using a non-broadband protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Kakuma et al., to replace the ISDN subscriber interface of Daniel et al. with a broadband ISDN interface, as disclosed by Kakuma et al., with the motivation being to provide more bandwidth capacity to the system.

With respect to claim 33, Cam et al., in the field of communications, discloses using SONET, which is a synchronous communication protocol, with training and timing overhead bits added **(See page 1 paragraph 10 and page 2 paragraph 16 of Cam et al. for reference to using SONET protocol with training and timing overhead bit patterns)**. Using SONET protocol with training and timing overhead bit patterns has the advantage of using a well-known protocol to communicate quickly and efficiently communicate information in a fiber optic link.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Cam et al., to combine using SONET

protocol with training and timing overhead bit patterns, as suggested by Cam et al., with the system and method of Daniel et al. and Kakuma et al., with the motivation being to use a well-known protocol to communicate quickly and efficiently communicate information in a fiber optic link.

With respect to claim 36, Daniel et al. discloses coupling the first subsystem to a subscriber data backbone **(See column 3 lines 53-62 and Figure 1 of Daniel et al. for reference to coupling the ITS 13 to an ISDN service of a subscriber, which is a subscriber backbone link)**.

With respect to claim 37, although Daniel et al. does disclose coupling the ITS 13 to an ISDN service, the combination of Daniel et al. and Kakuma et al. does not specifically disclose that the backbone comprises the Internet. Coupling a subscriber unit to the Internet is old and well known in the art of communications and would have been obvious to one of ordinary skill in the art at the time of the invention. Coupling a subscriber unit to the Internet has the advantage of allowing a subscriber to exchange data over the Internet, which is a widely used digital transmission network.

With respect to claim 38, Daniel et al. discloses using ISDN **(See column 3 lines 53-62 and Figure 1 of Daniel et al. for reference to the subscriber interface 16 including an interface for ISDN)**.

With respect to claim 42, Daniel et al. discloses coupling the second subsystem to a wireless subscriber data communication channel **(See column 4 lines 9-16 and Figure 1 of Daniel for reference to coupling the STRU 14 to a CDMA radio communication channel using CDMA modem 22 and radio transceiver 23)**.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and Cam et al. and in further view of Barsheshet (U.S. Publication US 2003/0043738 A1).

With respect to claim 21, the combination of Daniel et al., Kakuma et al., and Cam et al. does not disclose using resilient packet ring access protocol.

With respect to claim 21, Barsheshet, in the field of communications, discloses using resilient packet ring access protocol **(See page 1 paragraph 4 for reference to using resilient packet ring access protocol)**. Using resilient packet ring access protocol has the advantage of using a high-speed efficient packet communication protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Barsheshet, to combine using resilient packet ring access protocol, as suggested by Barsheshet, with the system and method of Daniel et al., Kakuma et al., and Cam et al., with the motivation being to use a high-speed efficient packet communication protocol.

11. Claims 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and Cam et al. and in further view of Zendle (U.S. Pat. 6865170 B1).

With respect to claim 34, the combination of Daniel et al., Kakuma et al., and Cam et al. does not specifically disclose the digital links between subsystems comprising fiber optic links.

With respect to claims 34, Zendle, in the field of communications, discloses using fiber optic interfaces and fiber optic links to couple subscriber subsystems **(See column 10 lines 10-41 and Figure 8 of Zendle for reference to using fiber optic cables and fiber optic interfaces to couple an indoor subscriber subsystem unit to an outdoor subscriber subsystem unit)**. Using fiber optic interfaces and fiber optic links to couple subscriber subsystems has the advantage of reducing signal loss between subscriber subsystems such that they may be more flexible positioned **(See column 10 lines 28-41 of Zendle for reference to this advantage)**.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Zendle, to combine using fiber optic interfaces and fiber optic links to couple subscriber subsystems, as suggested by Zendle, with the system and method of Daniel et al., Kakuma et al., and Cam et al., with the motivation being to reduce signal loss between subscriber subsystems such that they may be more flexible positioned.

12. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and Cam et al. and in further view of Eyuboglu et al..

With respect to claim 39, the combination of Daniel et al., Kakuma et al., and Cam et al. a does not disclose using Ethernet protocol.

With respect to claim 39, Eyuboglu et al., in the field of communications, discloses using Ethernet protocol **(See page 1 paragraph 5 of Eyuboglu et al. for reference to using Ethernet protocol in a backhaul connection to another network)**. Using Ethernet protocol has the advantage of allowing the users of the wireless network to communicate with users of an Ethernet network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Eyuboglu et al., to combine using Ethernet, as suggested by Eyuboglu et al., with the system and method of Daniel et al., Kakuma et al., and Cam et al., with the motivation being to allow the users of the wireless network to communicate with users of an Ethernet network.

13. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and Cam et al. and in further view of Marin et al..

With respect to claim 40, the combination of Daniel et al., Kakuma et al., and Cam et al. does not disclose using SONET protocol, which is a synchronous signal protocol.

With respect to claim 40, Marin et al. discloses using SONET protocol **(See page 2 paragraph 25 and Figure 2 of Marin et al. for reference to using SONET protocol in a backhaul connection)**. Using SONET protocol has the advantage of allowing the users of the wireless network to communicate with users of a SONET network.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Marin et al., to combine using SONET protocol, as suggested by Marin et al., with the system and method of Daniel et al., Kakuma et al., and Cam et al. with the motivation being to allow the users of the wireless network to communicate with users of a SONET network.

14. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. in view of Kakuma et al. and in further view of Barsheshet.

With respect to claim 41, the combination of Daniel et al. and Kakuma et al. does not disclose using resilient packet ring access protocol.

With respect to claim 41, Barsheshet, in the field of communications, discloses using resilient packet ring access protocol **(See page 1 paragraph 4 for reference to using resilient packet ring access protocol)**. Using resilient packet ring access protocol has the advantage of using a high-speed efficient packet communication protocol.

It would have been obvious for one of ordinary skill in the art at the time of the invention, when presented with the work of Barsheshet, to combine using resilient packet ring access protocol, as suggested by Barsheshet, with the system and method of Daniel et al. and Kakuma et al., with the motivation being to use a high-speed efficient packet communication protocol.

Allowable Subject Matter

15. Claims 22-27, 43-46, 69, and 75 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

16. Applicant's arguments filed 7/10/09 have been fully considered but they are not persuasive.

Regarding Applicant's argument that the combination of Daniel et al. and Kakuma et al. does not render the claims obvious because this combination requires substantial reconstruction and redesign of the primary reference, the Examiner respectfully disagrees. Replacing low speed communication connection with higher speed connections is commonplace in the art of communications. While this type of upgrade does require some network devices to be replaced, it does not require a substantial redesign of a communication system as a whole. Thus, replacing the ISDN interface of Daniel with the broadband ISDN interface of Kakuma et al. does not require a substantial redesign of the system of Daniel et al. and would have been obvious to one of ordinary skill in the art at the time of the invention. Regarding applicant's argument that Kakuma et al. teaches away from the combination, the Examiner respectfully disagrees. The placement of a broadband ISDN remote multiplexer as

taught by Kakuma et al. has no bearing on the proposed replacement of the ISDN interface of Daniel with the broadband ISDN interface of Kakuma et al., since the interface itself is not located at the multiplexer, but rather at the subscriber device.

Regarding Applicant's argument that the ITS 13 of Daniel et al. performs both analog and digital process, contrary to the claim language, since Daniel et al. teaches using a POTS interface, the Examiner respectfully disagrees. Although Daniel et al. does disclose an embodiment of the ITS 13 including one or more POTS interfaces, this is not the only embodiment disclosed. Daniel et al. also discloses an embodiment including three ISDN BRA lines (See column 3 lines 59-60 of Daniel et al.). In this embodiment there are no POTS interfaces and only an ISDN interface. Further, the includes of a POTS interface does not necessarily equate to the ITS 13 performing analog processing. Daniel never explicitly or inherently mentions any analog processing being performed by the ITS 13 and it is commonplace for analog to digital conversion to be performed by a modem connected to a subscriber interface a network interface unit rather than by the network interface unit itself.

Regarding Applicant's arguments that Cam et al. does not disclose synchronous communication, the Examiner respectfully disagrees. Cam et al. discloses communicating using synchronous optical networking (SONET), which is well known to be a synchronous communications protocol. Cam et al. does not disclose changing the SONET protocol such that communications are performed asynchronously, but rather teaches a way in which the timing of the synchronous communication is maintained. Most synchronous communications system use some type of training or control

information to correct for skew and maintain timing; however, this does not mean that those communication systems are asynchronous.

Regarding Applicant's argument that Daniel et al. does not disclose a second subscriber subsystem providing "all analog processing of subscriber data by the system", the Examiner respectfully disagrees. As discussed above, Daniel et al. does not disclose the ITS 13 performing any analog processing. Thus, since the STRU 14 of Daniel et al. performs analog processing while the ITS 13 does not, all analog processing of the NIU 2 is performed by the STRU 14.

As requested by the Applicant's argument, support for the well known elements of claims 11-13, 28-32, and 37 is now provided below:

Regarding claim 11, Vucetic et al. (U.S. Patent 5,819,177) discloses the well known use of a frequency converter for conversion between and intermediate frequency and a radio frequency (See column 4 line 47 to column 5 line 8 and Figure 2 of Vucetic et al.).

Regarding claim 12, Panasik et al. (U.S. Patent US 6,489,908 B2) discloses the well known use of an amplifier in a wireless transceiver (See column 7 line 51 to column 8 line 10 and Figure 10 of Panasik et al.).

Regarding claim 13, Haoui et al. (U.S. Patent 5,742,640) discloses the well known use of a digital multiplexer as a part of a subscriber subsystem (See column 6 lines 26-38, column 12 lines 25-35, and Figure 3 of Haoui et al.).

Regarding claims 28 and 29, Kwak et al. (U.S. Patent US 6,963,574 B1) discloses the well known use of a multi-port router/switch as a part of a subscriber subsystem (See column 5 lines 22-35 and Figure 1b of Kwak et al.).

Regarding claims 30 and 31, Eliznd et al. (U.S. Publication US 2004/0160917 A1) discloses the well known use of a multi-port router/switch as a part of a wireless subscriber subsystem (See page 3 paragraphs 35 and 36 and Figures 4A and 4B of Eliznd et al.).

Regarding claim 32, Smith (U.S. Patent 5,952,966) discloses the well known use of wired and wireless broadband interface as a part of wired and wireless subscriber subsystems (See column 1 lines 9-27 of Smith).

Regarding claim 37, Raleigh et al. (U.S. Patent US 6,463,096) discloses the well known use of the Internet as part of a communication backbone (See column 4 lines 34-44 and Figure 1 of Raleigh et al.).

Regarding Applicant's argument that the combination of Daniel et al. and Eyuboglu et al. does not disclose using Ethernet to couple the first subsystem to a data communication backbone, as recited in claims 3 and 39, the Examiner respectfully disagrees. Applicant argues that the network backbone disclosed by Eyuboglu et al. is different from the claimed subscriber backhaul. While this may be true, both a network backhaul and subscriber backhaul are similar links performing similar functions. Thus, it would have been obvious to apply the technique of using Ethernet with a network backhaul, as taught by Eyuboglu et al., to the subscriber backhaul of Daniel et al. since the similar backhauls operate in a similar manner.

Regarding Applicant's argument that the combination of Daniel et al. and Marin et al. does not disclose using SONET to couple the first subsystem to a data communication backbone, as in claims 4 and 40, the Examiner respectfully disagrees. Applicant argues that the network backbone disclosed by Marin et al. is different from the claimed subscriber backhaul. While this may be true, both a network backhaul and subscriber backhaul are similar links performing similar functions. Thus, it would have been obvious to apply the technique of using SONET with a network backhaul, as taught by Eyuboglu et al., to the subscriber backhaul of Daniel et al. since the similar backhauls operate in a similar manner.

Regarding Applicant's argument that there is no motivation to combine the teachings of Dapper et al. with the teachings of Daniel et al., the Examiner respectfully disagrees. Daniel et al. discloses a wireless subsystem using a CDMA wireless protocol. Dapper et al. discloses a wireless subsystem using an OFDMA wireless protocol. Replacing the use of one type of wireless protocol with another type of wireless protocol is an obvious substitution of similar devices to produce a similar result. Since the use of OFDMA provides advantages over the use of CDMA in certain operating environments, it would have been obvious to replace the CDMA components of the system of Daniel et al. with OFDMA components, as disclosed by Dapper et al. in order to gain the advantages of using OFDMA. Thus, there is proper motivation to combine the teachings of Daniel et al. and Dapper et al.

Regarding Applicant's argument that there is no motivation to combine the teachings of Zendle with the teachings of Daniel et al., the Examiner respectfully

disagrees. Daniel et al. discloses a digital link between subscriber subsystems, but does not indicate any specific type of link being used. Zendle discloses using a fiber optic link between subscriber subsystems. Since Daniel et al. fails to disclose any specific type of link to use, one of ordinary skill in the art would have been motivated to look elsewhere to determine what specific type of link to use. Thus it would have been obvious for one of ordinary skill in the art to combine the use of a fiber optic link, as taught by Zendle, with the system of Daniel et al. Therefore, there is proper motivation to combine the teachings of Zendle with the teachings of Daniel et al.

Regarding Applicant's argument that Cam et al. does not disclose "communicating a synchronous signal via said digital link to enable media access control to be provided by said first signal processing subscriber subsystem with respect to a physical link utilized by said second signal processing subscriber subsystem", as recited in claim 47, the Examiner respectfully disagrees. As shown in the rejections above, Cam et al. discloses using SONET to communicate a synchronous signal via a digital link (See page 1 paragraph 10 and page 2 paragraph 16 of Cam et al.). The limitation stating "to enable media access control to be provided by said first signal processing subscriber subsystem with respect to a physical link utilized by said second signal processing subscriber subsystem" is not a positively stated limitation and is merely an intended result of the "communication communicating a synchronous signal via said digital link". Thus, the combined teaches of Daniel et al. and Cam et al. do not need to actually provide media access control, but merely need to "enable" media access control to be provided. Since the SONET communication disclose by Cam et al.

could be used to provide media access control, Cam et al. does disclose enabling this function, as claimed.

Applicant's argument with respect to claims 22, 43, 69, and 75 are persuasive and thus, the rejections of these claims and the claims that depend on these claims have been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON E. MATTIS whose telephone number is (571)272-3154. The examiner can normally be reached on M-F 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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